

REMARKS

Applicants' representative appreciates the courtesies extended during the interview conducted on November 22, 2005. Reconsideration and allowance of the application are requested in light of the comments made during the interview and below.

The majority of the claims stand rejected under 35 U.S.C. §103 for obvious based on U.S. patent 6, 377,636 to Paulraj and newly cited U.S. patent 6,674,817 to Dolle. This rejection is respectfully traversed.

Paulraj describes coordinated transmission and training to mitigate interference in a cellular communications system. As shown in Figure 2, separate base station transmitters 15A, 15B, and 15C in their respective cells 13A, 13B, and 13C transmit separate signal S1, S2, and S3 at the same frequency with respective sectors 17A, 17B, and 17C. Col. 6, lines 10-15. Each "signal S1, S2, . . . , Sy is additionally provided with a training pattern, or in this case a training sequence tr." Column 8, lines 42-44. So Paulraj uses the term training pattern to mean a training sequence. Figures 5A and 5B show that each different signal transmission has its own training sequence, and that training sequence does not change during the signal transmission.

The Examiner admits that Paulraj lacks a teaching of "different training sequences assigned for different units of information associated with the signal to be transmitted over the connection between the mobile radio and the base station transceiver to provide training sequence hopping for the signal transmission." Page 4 of the office action. Dolle does not remedy this deficiency.

Dolle simply teaches that a training sequence is assigned for the duration of a downlink signal transmission and that a different training sequence is assigned for the duration of an uplink signal transmission. In addition, different mobile stations may be assigned different training

sequences. But in any of these cases, the assigned training sequence does not change during the signal transmission. As explained during the interview conducted on November 22, 2005, the independent claims recite that different training sequences are used during the same signal transmission over the connection between the one mobile station and the base station. Neither reference teaches this feature. At the request of the Examiner, the claims have been amended to recite that the signal transmission is divided into different time slots and that at least two of the time slots are associated with different training sequences. Neither reference teaches this kind of training sequence hopping during a single signal transmission between one mobile and a base station.

The inventors recognized that with training sequence hopping, different training sequence cross-correlations between the training sequence associated with a desired data burst and a training sequence associated with an interfering data burst occur during a single signal transmission. Most training sequence cross-correlations are low, and typically only a small number of the total time slots or bursts for a single signal transmission are normally adversely affected by higher cross-correlations. As a result, training sequences in each time slot may be used reliably to distinguish between time slots related to different users as well as to model the current radio channel supporting a connection. Unlike the fixed training sequence assigned to signal transmissions in Paulraj and Dolle, the training sequence hopping in accordance with the present invention ensures that worst interference scenarios do not prevail for longer than one training sequence hopping interval as opposed to the entire duration of the signal transmission over the established connection between the one mobile station and the base station. Training sequence hopping also eliminates the difficult task of training sequence planning, i.e., trying to

predict in advance a single training sequence would be the best for the duration of a signal transmission.


The Examiner applies several other references that fail to remedy the deficiencies of Paulraj. Neither Menzel, Balakrishnan, Bergkvist, Dogan, nor Suonvieri teach training sequence hopping for a signal transmission.

The application is in condition for allowance. An early notice to that effect is earnestly solicited.

Respectfully submitted,

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